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TITLE: Computerized Neuropsychological Screening of Army
Aviators

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MidTerm Overall Evaluation Report

PROPOSAL: 1999000234

TITLE: Computerized Neuropsychological Screening of Army Aviators

1. ACCOMPLISHMENTS:

We have completed all infrastructure planning to deploy this project. Included within our specific accomplishments are the following: 1. Completion, submission, and approval of the research protocol by Walter Reed Army Medical Center Department of Clinical Investigations (WRAMC-DCI). Approval required methodological revisions for statistical reasons and due to funding constraints (further details and revisions described in next section.) 2. Initiated contract for programmer. 3. Completed initial programming of the automated structured history questionnaire. 4. Obtained WRAMC-DCI required command approval from the Commander, Lyster Army Community Hospital, Fort Rucker, AL. 5. Testing software is on order, but not received yet.

2. PROBLEMS:

1. Approval of the protocol required methodological revisions due to funding constraints. The WRAMC-DCI statistician advised us that our proposed sample size ($N = 50$) was not adequate for the original number of variables proposed or to conduct an adequate test of concurrent validity. Based on this advice and our fixed funding amount (\$36,000) we reduced the number of variables and eliminated the concurrent validity aspect of the study. The proposal was subsequently approved to investigate correlations between 3 computerized neuropsychological tests and one criterion measure (instrumentation checkflight performance) with a sample size of 48 subjects. 2. Our original intent was to obtain protocol approval as well as additional manpower, facility and equipment support from US Army Aeromedical Research Lab (USAARL) at Fort Rucker, AL. Verbal coordination prior to submission of this proposal for funding indicated that they were interested, and an investigator from their staff was included on our investigator team. However, efforts to confirm their support during the early part of this project (JAN00-APR00) were unsuccessful, subsequently contributing to the delay in protocol approval associated with shifting the approval process to WRAMC-DCI. The loss of access to USAARL manpower and equipment resources will likely result in a longer period for running subjects through the protocol and necessitate hiring a research assistant. 3. We have encountered administrative delays in the acquisition of required commercial testing software (e.g., CogScreen, MicroCog). This has resulted in delaying the beginning of programming the database for data from these tests. 4. We have encountered delays in acquisition of the most recent copy of Automated Neuropsychological Assessment Metrics (ANAM2001) due to unanticipated efforts by the MRMC to secure patent/copyright protection prior to further use.

3. LIFE-CYCLE:

1. Finalize acquisition of commercial testing software with assistance of TMED Directorate, WRAMC. 2. Obtain approval from MRMC to use ANAM2001 while the copyright issues are pending. 3. Complete programming of the automated history questionnaire and test administration protocol. This will allow us to begin running subjects as early as JAN01. 4. Hire research assistant at Fort Rucker, AL to assist with recruiting and running subjects through the protocol. 5. Complete development of database.

4. DELIVERABLES:

Deliverable #1 (described below) has changed somewhat from original proposal due to a required reduction in number of variables under study and elimination of concurrent validity aspect of study. 1. Provide preliminary information about which neuropsychological variables under study correlate more highly with performance outcome and thus have potential predictive ability. 2. Make a preliminary determination as to which neuropsychological test may be best suited for use within Army Aviation. This will be based on a review of problems encountered in developing a new telehealth database system for 3 different computerized neuropsychological tests, the cost associated with use of each different test, and the results of

correlational analysis between neuropsychological variables and performance outcome. 3. Develop a set of recommendations for development of a standardized and uniform neuropsychological assessment protocol for Army aviation. These recommendations will also address development of preliminary normative data, the potential need to collect baseline data on all future aviators, as well as the potential usefulness of such data in addressing decisions about aviation training, airframe assignments and deciding medical waivers.